This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A parametric shape [grammar] interpreter, comprising:

a shape decomposition module for decomposing a shape into a group of subshapes arranged in a hierarchical order; and

a shape recognition module in communication with the shape decomposition module.

2. (Original) The parametric shape grammar interpreter of claim 1, wherein the shape decomposition module is for decomposing a left-hand shape of a shape grammar rule into at least one subshape belonging to one of a plurality of subshape groups.

3. (Original) The parametric shape grammar interpreter of claim 2, wherein the subshape groups have a hierarchical order of decreasing constraints.

4. (Currently amended) The parametric shape grammar interpreter of claim 2, wherein the shape decomposition module is for decomposing a two-dimensional left-hand shape of a shape grammar rule into [the subshape] one or more subshapes.

5. (Currently amended) The parametric shape grammar interpreter of claim 2, wherein the shape decomposition module is for decomposing a three-dimensional left-hand shape of a shape grammar rule into [the subshape] one or more subshapes.

6. (Currently amended) The parametric shape grammar interpreter of claim 2, wherein the shape decomposition module is for decomposing a one-dimensional left-hand shape of a shape grammar rule into [the subshape] one or more subshapes.

7. (Original)   The parametric shape grammar interpreter of claim 2, wherein the shape recognition module is for searching a shape for a parametric transformation of the subshape.

8. (Original)   The parametric shape grammar interpreter of claim 2, wherein the shape recognition module is for recognizing a parametric transformation of the left-hand shape of the shape grammar rule in a first shape by searching the first shape for a parametric transformation of the subshape.

9. (Original)   The parametric shape grammar interpreter of claim 8, wherein the shape recognition module is for recognizing a parametric transformation of the left-hand shape of the shape grammar rule in a first shape by progressively searching for a parametric transformation of

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a subshape belonging to each of the subshape groups that is not null and subtracting the parametric transformation from the first shape.

10. Cancelled.

11. Cancelled.

12. (Currently Amended) A shape grammar system, comprising:

a parametric shape grammar interpreter for recognizing parametric transformations of a first shape in a second shape, said interpreter comprising a shape decomposition module for decomposing a shape into a group of subshapes arranged in a hierarchical order and a shape recognition module in communication with the shape decomposition module; and

a rule application module in communication with the parametric shape grammar interpreter.

13. Cancelled.

14. (Currently Amended) The shape grammar system of claim [13] 12, wherein the shape decomposition module is for decomposing a left-hand shape of a shape grammar rule into at least one subshape belonging to one of a plurality of subshape groups.

15. (Currently Amended) The shape grammar system of claim [14] 12, wherein the subshape groups have a hierarchical order of decreasing constraints.

16. (Currently Amended) The shape grammar system of claim [15] 14, wherein the shape recognition module is for recognizing a parametric transformation of the left-hand shape of the shape grammar rule in a first shape by searching the first shape for a parametric transformation of the subshape.

17. (Currently amended) The shape grammar system of claim 16, wherein the shape recognition module is for recognizing a parametric transformation of the left-hand shape of the shape grammar rule in a first shape by progressively searching for a parametric transformation of a subshape belonging to each of the subshape groups that is not null and subtracting the parametric transformation of the subshape from the first shape.

18. (Original) The shape grammar system of claim 16, wherein the rule application module is for applying the shape grammar rule by subtracting the parametric transformation of the left-hand shape of the shape grammar rule from the first shape and substituting therefore a transformation of a right-hand shape of the shape grammar rule.

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19. (Original) The shape grammar system of claim 12, further comprising an intelligent rule selection module in communication with the parametric shape grammar interpreter.

20. (Currently amended) A parametric shape grammar interpreter, comprising:

means for decomposing a left-hand shape of a shape grammar rule into at least one subshape belonging to one of a plurality of subshape groups having a hierarchical order of decreasing constraints; and

means for recognizing a parametric transformation of the left-hand shape of the shape grammar rule in a first shape by [searching the first shape for a parametric transformation of the subshape] progressively searching for a parametric transformation of a subshape belonging to each of the subshape groups that is not null and subtracting the parametric transformation of the subshape from the first shape, said mean for recognizing including means for adding a parametric transformation of a first subshape found in the first shape belonging to a first of the subshape groups and a parametric transformation of a second subshape found in a second shape belonging to a second of the subshape groups, wherein the second shape corresponds to the transformed first subshape subtracted from the first shape.

21. Cancelled.

22. Cancelled.

23. Cancelled.

24. (Currently Amended) A parametric shape interpreter, comprising:

means for decomposing a first shape into at least one subshape belonging to one of a plurality of subshape groups arranged in a hierarchical order; and

means for recognizing a parametric transformation of the first shape in a second shape by searching the second shape for a parametric transformation of the subshape.

25. (Currently Amended) A method of recognizing parametric transformations of a left-hand shape of a shape grammar rule in a first shape, comprising:

decomposing the left-hand shape of the shape grammar rule into at least one subshape belonging to one of a plurality of subshape groups having a hierarchical order of decreasing constraints;[and]

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[searching the first shape for a parametric transformation of the subshape] progressively searching for a parametric transformation of a subshape belonging to each of the subshape groups that is not null and subtracting the parametric transformation from a first shape; and

adding a parametric transformation of a first subshape found in the first shape belonging to a first of the subshape groups and a parametric transformation of a second subshape found in a second shape belonging to a second of the subshape groups, wherein the second shape corresponds to the transformed first subshape subtracted from the first shape.

26. Cancelled.

27. (Currently) A method of recognizing parametric transformations of a left-hand shape of a shape grammar rule in a first shape, comprising:

searching the first shape for a parametric transformation of a first subshape, from a group of subshapes arranged in a hierarchical order, of the left-hand shape of the shape grammar rule;

generating a second shape corresponding to the parametric transformation of the first subshape, found in the first shape, subtracted from the first shape;

searching the second shape for a parametric transformation of a second subshape from said group of subshapes of the left-hand shape of the shape grammar rule; and

adding the parametric transformation of the first subshape found in the first shape to a parametric transformation of the second subshape found in the second shape.

28. (Currently Amended) The method of claim 27, further comprising:

generating a third shape corresponding to the parametric transformation of the second subshape subtracted from the second shape;

searching the third shape for a parametric transformation of a third subshape from said group of subshapes of the left-hand shape of the shape grammar rule; and

adding the parametric transformation of the third subshape found in the third shape to a sum of the parametric transformation of the first subshape found in the first shape and the parametric transformation of the second subshape found in the second shape.

29. (Original) The method of claim 27, further comprising:

subtracting a sum of the parametric transformation of the first subshape found in the first shape and the parametric transformation of the second subshape found in the second shape from the first shape; and

adding a corresponding transformation of a right-hand shape of the shape grammar rule to the first shape.

30. (Currently Amended) A method of recognizing a first shape in a second shape, comprising:

decomposing the first shape into at least one subshape belonging to one of a plurality of hierarchically arranged subshape groups; and

searching the second shape for a parametric transformation of the subshape.

31. (Currently amended) The method of claim 30, wherein searching the second shape includes progressively searching the second shape for a parametric transformation of a subshape belonging to each of the subshape groups that are not null and subtracting the parametric transformation of the subshape from the second [group] shape.

32. (New) A method, comprising:

decomposing a first shape into a plurality of subshapes;

searching in a hierarchical manner in a second shape for said plurality of subshapes; and

identifying instances of said subshapes in said second shape based on said searching.

33. (New) The method of claim 32 additionally comprising applying a rule when said first shape is identified in said second shape.

34. (New) A method, comprising:

decomposing a first shape into a plurality of hierarchically ordered subshapes;

searching in a second shape for said plurality of subshapes; and

identifying instances of said subshapes in said second shape based on said searching.

35. (New) The method of claim 34 additionally comprising applying a rule when said first shape is identified in said second shape.

36. (New) An automated method, comprising:

decomposing a first shape into a plurality of subshapes;

searching in a hierarchical manner in a series of second shapes for said plurality of subshapes; and

identifying instances of said subshapes in said series of second shapes based on said searching.

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37. (New) The method of claim 36 wherein said series of second shapes is derived by subtracting an identified subshape from a previous second shape.

38. (New) The method of claim 36 additionally comprising applying a rule when all of said plurality of subshapes from said first shape are identified in said series of second shapes.

39. (New) An automated method, comprising:

decomposing a first shape into a plurality of hierarchically ordered subshapes;

searching in a series of second shapes for said plurality of subshapes; and

identifying instances of said subshapes in said series of second shapes based on said searching.

40. (New) The method of claim 39 wherein said series of second shapes is derived by subtracting an identified subshape from a previous second shape.

41. (New) The method of claim 39 additionally comprising applying a rule when all of said plurality of subshapes from said first shape are identified in said series of second shapes.